Data Validation Package

April 2009
Groundwater and Surface Water Sampling at the Gunnison, Colorado, Processing Site

June 2009

U.S. DEPARTMENT OF ENERGY | Legacy Management

This page intentionally left blank

Contents

This page intentionally left blank

Sampling Event Summary

Site: Gunnison, Colorado, Processing Site

Sampling Period: April 20-22, 2009

This event included annual sampling of wells and surface water locations at the Gunnison, Colorado, Processing Site. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*.

Samples were collected from 29 monitor wells, six domestic wells, and five surface locations at the processing site as specified in the *Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site*. Domestic wells 0476, 0477, and 0683 were not sampled because the property owner was not available to allow access. These wells will be sampled at a later date. Duplicate samples were collected from locations 0067, 0113, and 0191. One equipment blank was collected during this sampling event. Water levels were measured at all monitor wells that were sampled.

Manganese and uranium were selected as the constituents of potential concern at the Gunnison site because they exceeded a risk-based benchmark and a groundwater standard, respectively. A variety of tailings-related contaminants were monitored in the past, which were eliminated as constituents of potential concern because concentrations did not exceed groundwater standards and/or did not pose a significant risk to human health and the environment. Monitor wells with sample concentrations that exceeded the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) for uranium (40 CFR 192) or the EPA drinking water equivalent level (DWEL) for manganese are listed in Table 1.

Time-concentration graphs for selected processing site monitor wells are included with the analytical data. Time-concentration graphs for manganese indicate that concentrations of manganese in groundwater beneath and downgradient of the site are above the DWEL, but concentrations are generally decreasing with time. Time-concentration graphs for uranium indicate that concentrations of uranium in groundwater beneath and downgradient of the site are above the MCL, with concentrations decreasing in some portions of the aquifer and remaining constant or increasing in others. An assessment of the progress of natural flushing of the alluvial aquifer will be detailed in the forthcoming verification monitoring report.

Uranium concentrations in the six domestic wells sampled near the processing site were all below the EPA drinking water standard (0.030 milligrams per liter [mg/L]), and manganese concentrations in these wells were all below the DWEL.

Table 1. Gunnison Locations That Exceed the Uranium MCL and Manganese DWEL

Analyte	MCL[a]	DWEL[b]	Location	Concentration[c]
Uranium	0.044		0005	0.06
			0006	1.00
			0112	0.08
			0012R	0.21
			0113	0.11
			0183	0.06
Manganese		1.6	0105	3.7
			0106	6.1
			0112	5.0
			0113	1.7
			0135	2.8

[a]Uranium standard is listed in 40 CFR 192.02 Table 1 to Subpart A; units are in mg/L.
[b]DWEL from EPA 's *2004 Edition of the Drinking Water Standards and Health Advisories.*
[c]Units are in mg/L.

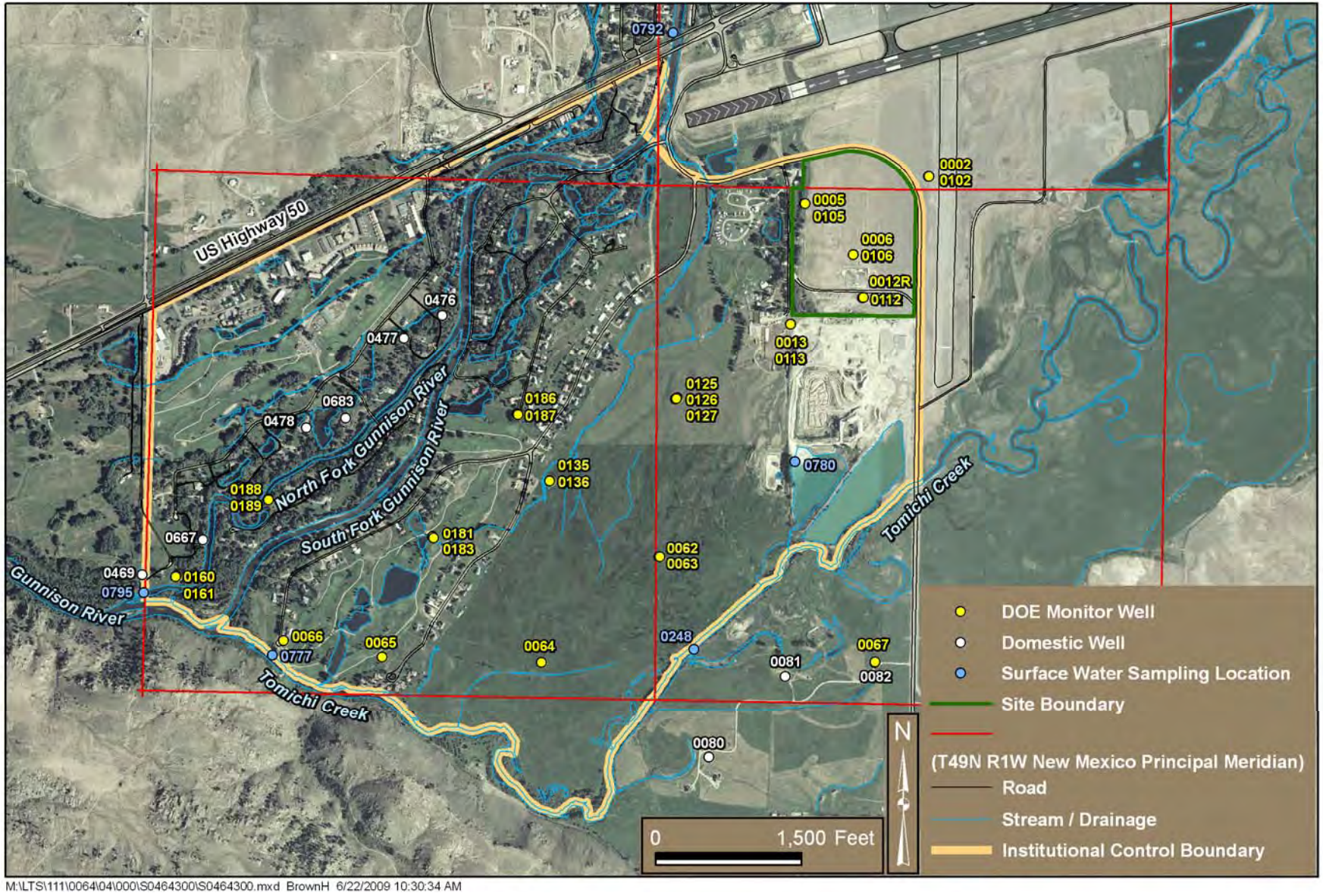
Surface water uranium concentrations were compared to a statistical benchmark derived from location 0792 data, which is located on the Gunnison River upstream from the site. The benchmark value is equal to the maximum concentration or the highest detection limit because there are more than 15 percent but less than 50 percent non-detects. The uranium concentration at the Gunnison River downstream location 0795 was less than the benchmark value indicating minimal impact to the Gunnison River from site activities. Uranium concentration at the gravel pit pond (0780) is elevated compared to the benchmark as expected because the gravel pit is recharged by contaminated groundwater from the site. Uranium concentrations at Tomichi Creek locations (0248 and 0777) were elevated compared to the benchmark because Tomichi Creek receives discharge from the gravel pit pond.

Table 2. Comparison of Surface Water Uranium Concentrations to the Benchmark Value

Description	Location	Uranium Concentration (mg/L)	Benchmark Value
Tomichi Creek	0248	0.0094	0.0010
	0777	0.0068	
Valco Pond	0780	0.016	
Gunnison River	0795	0.00056	

Sam Campbell
Site Lead, S.M. Stoller

6-23-09
Date



Gunnison, Colorado, Processing Site Sample Location Map

This page intentionally left blank

Data Assessment Summary

This page intentionally left blank

Water Sampling Field Activities Verification Checklist

Project	Gunnison, Colorado	**Date(s) of Water Sampling**	April 20-22, 2009
Date(s) of Verification	May 14, 2009	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOPs, instructions.		Work Order Letter dated March 18, 2009.
2. Were the sampling locations specified in the planning documents sampled?	No	Domestic wells 0476, 0477, and 0683 were not sampled because the property owner was away.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on April 20, 2009.
4. Was an operational check of the field equipment conducted daily?	Yes	Operational checks were performed on April 21, 2009 and April 22, 2009.
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicate samples were collected from locations 0067, 0113, and 0161.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location IDs of 2597, 2598, 2748, and 2749 were used for QC samples.
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	The duplicate collected at location 0161 was filtered.
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the “Date Signed” fields (FDCS)?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	NA	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 09032202
Sample Event: April 20-22, 2009
Site(s): Gunnison, Colorado
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 0904203
Analysis: Metals
Validator: Steve Donivan
Review Date: May 14, 2009

This validation was performed according to the *Environmental Procedures Catalog,* "Standard Practice for Validation of Laboratory Data," GT-9(P). The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 3.

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese, Mn	LMM-01	SW-846 3005A	SW-846 6010B
Uranium, U	LMM-02	SW-846 3005A	SW-846 6020A

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 44 water samples on April 24, 2009, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the forms and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents had no errors or omissions. Copies of the air waybill labels were included with the receiving documentation.

Preservation and Holding Times

The sample shipments were received intact at ambient temperature, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

Data Qualifier Summary

The analytical results were qualified as listed in Table 4. Refer to the sections below for an explanation of the data qualifiers applied.

Table 4. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
0904203-1	0002	Mn	U	Less than 5 times the method blank
0904203-11	0067	Mn	J	Serial dilution failure
0904203-15	0102	Mn	U	Less than 5 times the method blank
0904203-22	0127	Mn	U	Less than 5 times the method blank
0904203-29	0186	Mn	U	Less than 5 times the method blank
0904203-31	0188	Mn	U	Less than 5 times the method blank
0904203-34	0469	Mn	U	Less than 5 times the method blank
0904203-41	0067 duplicate	Mn	J	Serial dilution failure
0904203-43	Equipment Blank	Mn	U	Less than 5 times the method blank
0904203-43	Equipment Blank	U	U	Less than 5 times the method blank

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Method SW-846 6010M, Manganese

Calibrations were performed for manganese on April 28-29, 2009. The initial calibrations were performed using one standard and a blank. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 18 calibration checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. All check results were within the acceptance range.

Method SW-846 6020A, Uranium

Calibration was performed for uranium on April 30, 2009. The initial calibration was performed using seven calibration standards resulting in a calibration curve with a correlation coefficient value greater than 0.995. The absolute value of the curve intercept was less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 12 calibration checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. All check results were within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and initial and continuing calibration blank results were below the practical quantitation limits for manganese and uranium. In cases where the blank concentration exceeds the instrument detection limit, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma interference check samples ICSA and ICSAB were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

Matrix Spike Analysis

Matrix spike and matrix spike duplicate pairs were analyzed for manganese and uranium as a measure of method performance in the sample matrix. The matrix spike and matrix spike duplicate recoveries met the acceptance criteria for both analytes.

Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample results for all analytes were less than twenty percent, indicating acceptable laboratory precision.

Laboratory Control Samples

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The laboratory control sample results were acceptable for all analysis.

Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. Serial dilutions were prepared and analyzed for manganese and uranium. The acceptance criteria were met for both analytes with the following exception. The manganese serial dilution result for sample 2597 (0067 duplicate) did not meet the acceptance criteria. The manganese results for sample 0067 and duplicate 0067 are qualified with a "J" flag as estimated values.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for both analytes.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Electronic Data Deliverable (EDD) File

The EDD file arrived on May 1, 2009. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 09032202 **Lab Code:** PAR **Validator:** Steve Donivan **Validation Date:** 5/14/2009

Project: Gunnison **Analysis Type:** ☑ Metals ☐ General Chem ☐ Rad ☐ Organics

# of Samples: 44 **Matrix:** WATER **Requested Analysis Completed:** Yes

Chain of Custody

Present: OK **Signed:** OK **Dated:** OK

Sample

Integrity: OK **Preservation:** OK **Temperature:** OK

Select Quality Parameters

☑ Holding Times	All analyses were completed within the applicable holding times.
☑ Detection Limits	The reported detection limits are equal to or below contract requirements.
☑ Field/Trip Blanks	There was 1 trip/equipment blank evaluated.
☑ Field Duplicates	There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 09032202 **Lab Code:** PAR **Date Due:** 5/22/2009

Matrix: Water **Site Code:** GUN **Date Completed:** 5/4/2009

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
MANGANESE	04/28/2009			OK	OK	OK	OK	OK		111.0	115.0	3.0	96.0	5.0	108.0
MANGANESE	04/28/2009												97.0		103.0
MANGANESE	04/29/2009			OK	OK	OK	OK	OK	103.0	101.0	101.0	1.0	91.0	10.0	100.0
MANGANESE	04/29/2009								102.0	98.0	97.0	1.0	92.0	15.0	101.0
MANGANESE	04/29/2009									102.0	102.0	0.0	96.0		104.0
URANIUM	04/30/2009	0.0000	1.0000	OK	OK	OK	OK	OK	100.0	100.0	103.0	2.0		1.0	79.0
URANIUM	04/30/2009							OK	100.0	101.0	103.0	1.0	110.0	4.0	
URANIUM	04/30/2009									101.0	100.0	1.0		4.0	
URANIUM	04/30/2009									100.0	99.0	1.0			

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Sample results for all monitor wells met the Category I or II low-flow sampling criteria and were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method.

The groundwater sample results for wells 0136 and 0189 were qualified with a "Q" flag in the database indicating the data are considered qualitative because the wells were sampled using Category II criteria.

Equipment Blank Assessment

One equipment blank was collected after sampling at surface location 0780. There were no analytes detected in the equipment blank.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from locations 0067, 0113, and 0161. The duplicate results met the EPA recommended laboratory duplicate criteria of less than 20 percent relative difference for results that are greater than 5 times the practical quantitation limit, demonstrating acceptable overall precision with the following exception. The manganese relative percent difference for the sample collected from location 0161 is 31 percent. The higher variability may have been a result of collecting an unfiltered sample and a filtered duplicate.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 09032202 **Lab Code:** PAR **Project:** Gunnison **Validation Date:** 5/14/2009

Duplicate: 2597 **Sample:** 0067

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
MANGANESE	13			13	E		0		UG/L
URANIUM	9.7			9.5			2.08		UG/L

Duplicate: 2598 **Sample:** 0113

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
MANGANESE	1700			1700			0		UG/L
URANIUM	110			100			9.52		UG/L

Duplicate: 2749 **Sample:** 0161

Analyte	Sample Result	Sample Flag	Sample Error	Duplicate Result	Duplicate Flag	Duplicate Error	RPD	RER	Units
MANGANESE	6.6			9			30.77		UG/L
URANIUM	18			18			0		UG/L

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Steve Donivan — 6-18-2009 Date

Data Validation Lead: Steve Donivan — 6-18-2009 Date

This page intentionally left blank

Attachment 1
Assessment of Anomalous Data

This page intentionally left blank

Potential Outliers Report

This page intentionally left blank

Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in the SEEPro database. The application compares the new data set with historical data and lists the new data that fall outside the historical data range. A determination is also made if the data are normally distributed using the Shapiro-Wilk Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition.

The uranium concentrations in wells 0106 and 0469 were identified as a potential outliers.

These results are considered acceptable because they are consistent with recent trends in their respective data set.

Data Validation Outliers Report - Field Parameters Only
Laboratory: Field Measurements
RIN: 09032202
Comparison: All Historical Data
Report Date: 6/10/2009

Site Code	Location Code	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Number of Data Points		Normally Distributed	Statistical Outlier
				Result	Qualifiers Lab	Qualifiers Data	Result	Qualifiers Lab	Qualifiers Data	Result	Qualifiers Lab	Qualifiers Data	N	N Below Detect		
GUN01	0005	04/21/2009	pH	6.75		F	7.36			6.87			8	0	Yes	No
GUN01	0013	04/22/2009	Turbidity	2.88		F	1.97		F	0			15	2	Yes	No
GUN01	0080	04/22/2009	Oxidation Reduction Potential	-1			-5			-205			8	0	Yes	No
GUN01	0080	04/22/2009	Specific Conductance	426			511		F	442		F	8	0	Yes	No
GUN01	0080	04/22/2009	Turbidity	1.14			178		F	1.62			7	0	Yes (log)	No
GUN01	0081	04/21/2009	Oxidation Reduction Potential	117			-10			-202.3		F	8	0	No	No
GUN01	0081	04/21/2009	pH	6.87			7.66		F	7.09			8	0	Yes	No
GUN01	0082	04/21/2009	Oxidation Reduction Potential	35			-17			-241.2		F	8	0	Yes	No
GUN01	0102	04/21/2009	Specific Conductance	644		F	612			250			21	0	No	No
GUN01	0112	04/21/2009	Specific Conductance	935		F	1763			954		FQ	15	0	Yes	No
GUN01	0127	04/20/2009	Specific Conductance	722		F	1709			776		F	25	0	No	Yes
GUN01	0135	04/20/2009	Oxidation Reduction Potential	46.6		F	32			-259		F	5	0	Yes	No
GUN01	0135	04/20/2009	pH	6.26		F	7.13		F	6.59			7	0	Yes	No
GUN01	0186	04/22/2009	Turbidity	5.5		F	2			0.09			14	2	Yes	Yes
GUN01	0248	04/20/2009	pH	7.69			8.62			7.94			8	0	Yes	No
GUN01	0777	04/21/2009	Turbidity	33.4			18.7			2.55			7	0	Yes	No

Data Validation Outliers Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 09032202

Comparison: All Historical Data

Report Date: 6/10/2009

				Current			Historical Maximum			Historical Minimum			Number of		Normally	Statistical
					Qualifiers			Qualifiers			Qualifiers		Data Points		Distributed	Outlier
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect		
GUN01	0081	04/21/2009	Manganese	0.4			0.36			0.058			8	0	Yes	No
GUN01	0106	04/21/2009	Uranium	0.013		F	0.011		FQ	0.0002	U		31	15	Yes (log)	Yes
GUN01	0112	04/21/2009	Uranium	0.078		F	0.05		F	0.002			17	0	No	Yes
GUN01	0127	04/20/2009	Uranium	0.017		F	0.053			0.02		F	26	0	Yes	No
GUN01	0135	04/20/2009	Manganese	2.8		F	4.4			3.3		F	7	0	Yes	No
GUN01	0187	04/22/2009	Manganese	0.99		F	10			1.2		F	19	0	No	No
GUN01	0469	04/21/2009	Uranium	0.00062			0.004		J	0.00064			19	1	Yes (log)	Yes

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P	> 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z	Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique.	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

STATISTICAL TESTS:

The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test
Outliers are identified using Dixon's Test when there are 25 or fewer data points.
Outliers are identified using Rosner's Test when there are 26 or more data points.
See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

This page intentionally left blank

Attachment 2
Data Presentation

This page intentionally left blank

Groundwater Quality Data

This page intentionally left blank

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0002 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	10	-	15	0.0019	B	UF	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	10	-	15	84		F	#		
pH	s.u.	04/21/2009	N001	10	-	15	7.04		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	10	-	15	565		F	#		
Temperature	C	04/21/2009	N001	10	-	15	8.52		F	#		
Turbidity	NTU	04/21/2009	N001	10	-	15	2.51		F	#		
Uranium	mg/L	04/21/2009	N001	10	-	15	0.0026	E	F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0005 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	10	-	15	0.5		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	10	-	15	-16		F	#		
pH	s.u.	04/21/2009	N001	10	-	15	6.75		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	10	-	15	555		F	#		
Temperature	C	04/21/2009	N001	10	-	15	7.8		F	#		
Turbidity	NTU	04/21/2009	N001	10	-	15	5.29		F	#		
Uranium	mg/L	04/21/2009	N001	10	-	15	0.061		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0006 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	10	-	15	0.33		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	10	-	15	25		F	#		
pH	s.u.	04/21/2009	N001	10	-	15	6.57		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	10	-	15	2295		F	#		
Temperature	C	04/21/2009	N001	10	-	15	9.02		F	#		
Turbidity	NTU	04/21/2009	N001	10	-	15	2.43		F	#		
Uranium	mg/L	04/21/2009	N001	10	-	15	1		F	#	0.00009	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0012R WELL Replacement well for 0012, broken casing, decommissioned

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	6.03	-	16	0.0097		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	6.03	-	16	130		F	#		
pH	s.u.	04/21/2009	N001	6.03	-	16	6.65		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	6.03	-	16	1045		F	#		
Temperature	C	04/21/2009	N001	6.03	-	16	8.8		F	#		
Turbidity	NTU	04/21/2009	N001	6.03	-	16	6.75		F	#		
Uranium	mg/L	04/21/2009	N001	6.03	-	16	0.21		F	#	0.000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0013 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	11	-	16	0.2		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	11	-	16	184		F	#		
pH	s.u.	04/22/2009	N001	11	-	16	7.06		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	11	-	16	637		F	#		
Temperature	C	04/22/2009	N001	11	-	16	8.26		F	#		
Turbidity	NTU	04/22/2009	N001	11	-	16	2.88		F	#		
Uranium	mg/L	04/22/2009	N001	11	-	16	0.039		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0062 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	47.9	-	57.9	0.0044	B	F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	47.9	-	57.9	79		F	#		
pH	s.u.	04/20/2009	N001	47.9	-	57.9	7		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	47.9	-	57.9	524		F	#		
Temperature	C	04/20/2009	N001	47.9	-	57.9	8.81		F	#		
Turbidity	NTU	04/20/2009	N001	47.9	-	57.9	1.93		F	#		
Uranium	mg/L	04/20/2009	N001	47.9	-	57.9	0.0083		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0063 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	87.9	-	97.9	0.05		F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	87.9	-	97.9	73		F	#		
pH	s.u.	04/20/2009	N001	87.9	-	97.9	7.16		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	87.9	-	97.9	482		F	#		
Temperature	C	04/20/2009	N001	87.9	-	97.9	9.14		F	#		
Turbidity	NTU	04/20/2009	N001	87.9	-	97.9	9.39		F	#		
Uranium	mg/L	04/20/2009	N001	87.9	-	97.9	0.011		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0064 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	86.7	-	96.7	0.0037	B	F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	86.7	-	96.7	65		F	#		
pH	s.u.	04/20/2009	N001	86.7	-	96.7	6.94		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	86.7	-	96.7	483		F	#		
Temperature	C	04/20/2009	N001	86.7	-	96.7	9.85		F	#		
Turbidity	NTU	04/20/2009	N001	86.7	-	96.7	1.61		F	#		
Uranium	mg/L	04/20/2009	N001	86.7	-	96.7	0.011		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0065 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	49.7	-	59.7	0.033		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	49.7	-	59.7	193		F	#		
pH	s.u.	04/22/2009	N001	49.7	-	59.7	7.17		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	49.7	-	59.7	733		F	#		
Temperature	C	04/22/2009	N001	49.7	-	59.7	7.57		F	#		
Turbidity	NTU	04/22/2009	N001	49.7	-	59.7	6.51		F	#		
Uranium	mg/L	04/22/2009	N001	49.7	-	59.7	0.031		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0066 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	40.2	-	50.2	0.0075		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	40.2	-	50.2	20		F	#		
pH	s.u.	04/21/2009	N001	40.2	-	50.2	6.81		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	40.2	-	50.2	688		F	#		
Temperature	C	04/21/2009	N001	40.2	-	50.2	9.5		F	#		
Turbidity	NTU	04/21/2009	N001	40.2	-	50.2	1.39		F	#		
Uranium	mg/L	04/21/2009	N001	40.2	-	50.2	0.023		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0067 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	39.67	-	49.67	0.013		FJ	#	0.00012	
Manganese	mg/L	04/21/2009	N002	39.67	-	49.67	0.013	E	FJ	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	39.67	-	49.67	19		F	#		
pH	s.u.	04/21/2009	N001	39.67	-	49.67	6.97		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	39.67	-	49.67	462		F	#		
Temperature	C	04/21/2009	N001	39.67	-	49.67	7.59		F	#		
Turbidity	NTU	04/21/2009	N001	39.67	-	49.67	2.36		F	#		
Uranium	mg/L	04/21/2009	N001	39.67	-	49.67	0.0097		F	#	0.0000045	
Uranium	mg/L	04/21/2009	N002	39.67	-	49.67	0.0095		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0080 WELL Key to pump house for well 080 can be obtained from house to the southwest, if needed.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	-	0.1			#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	-	-1			#		
pH	s.u.	04/22/2009	N001	-	6.75			#		
Specific Conductance	umhos /cm	04/22/2009	N001	-	426			#		
Temperature	C	04/22/2009	N001	-	12.5			#		
Turbidity	NTU	04/22/2009	N001	-	1.14			#		
Uranium	mg/L	04/22/2009	N001	-	0.0024			#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0081 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	-	0.4			#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	-	117			#		
pH	s.u.	04/21/2009	N001	-	6.87			#		
Specific Conductance	umhos /cm	04/21/2009	N001	-	446			#		
Temperature	C	04/21/2009	N001	-	6.86			#		
Turbidity	NTU	04/21/2009	N001	-	3.96			#		
Uranium	mg/L	04/21/2009	N001	-	0.0061			#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0082 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	-	0.12			#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	-	35			#		
pH	s.u.	04/21/2009	N001	-	7.07			#		
Specific Conductance	umhos /cm	04/21/2009	N001	-	472			#		
Temperature	C	04/21/2009	N001	-	8.84			#		
Turbidity	NTU	04/21/2009	N001	-	7.54			#		
Uranium	mg/L	04/21/2009	N001	-	0.0097			#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0102 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	42	-	47	0.0015	B	UF	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	42	-	47	69		F	#		
pH	s.u.	04/21/2009	N001	42	-	47	7.27		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	42	-	47	644		F	#		
Temperature	C	04/21/2009	N001	42	-	47	9.99		F	#		
Uranium	mg/L	04/21/2009	N001	42	-	47	0.0042		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0105 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	42	-	47	3.7		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	42	-	47	-52		F	#		
pH	s.u.	04/21/2009	N001	42	-	47	6.2		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	42	-	47	516		F	#		
Temperature	C	04/21/2009	N001	42	-	47	10		F	#		
Turbidity	NTU	04/21/2009	N001	42	-	47	1.84		F	#		
Uranium	mg/L	04/21/2009	N001	42	-	47	0.011		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0106 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	34	-	39	6.1		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	34	-	39	-9		F	#		
pH	s.u.	04/21/2009	N001	34	-	39	5.7		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	34	-	39	1937		F	#		
Temperature	C	04/21/2009	N001	34	-	39	9.94		F	#		
Turbidity	NTU	04/21/2009	N001	34	-	39	5.34		F	#		
Uranium	mg/L	04/21/2009	N001	34	-	39	0.013		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0112 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	40	-	45	5		F	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	40	-	45	137		F	#		
pH	s.u.	04/21/2009	N001	40	-	45	5.81		F	#		
Specific Conductance	umhos /cm	04/21/2009	N001	40	-	45	935		F	#		
Temperature	C	04/21/2009	N001	40	-	45	10.9		F	#		
Turbidity	NTU	04/21/2009	N001	40	-	45	4.57		F	#		
Uranium	mg/L	04/21/2009	N001	40	-	45	0.078		F	#	0.000022	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0113 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	41	-	46	1.7		F	#	0.00012	
Manganese	mg/L	04/22/2009	N002	41	-	46	1.7		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	41	-	46	174		F	#		
pH	s.u.	04/22/2009	N001	41	-	46	6.94		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	41	-	46	541		F	#		
Temperature	C	04/22/2009	N001	41	-	46	10.19		F	#		
Turbidity	NTU	04/22/2009	N001	41	-	46	1.29		F	#		
Uranium	mg/L	04/22/2009	N001	41	-	46	0.11		F	#	0.000022	
Uranium	mg/L	04/22/2009	N002	41	-	46	0.1		F	#	0.000022	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0125 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	17.8	-	22.8	0.031		F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	17.8	-	22.8	94		F	#		
pH	s.u.	04/20/2009	N001	17.8	-	22.8	6.87		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	17.8	-	22.8	468		F	#		
Temperature	C	04/20/2009	N001	17.8	-	22.8	9.16		F	#		
Turbidity	NTU	04/20/2009	N001	17.8	-	22.8	0.88		F	#		
Uranium	mg/L	04/20/2009	N001	17.8	-	22.8	0.0077		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0126 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	54	-	59	0.02		F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	54	-	59	89		F	#		
pH	s.u.	04/20/2009	N001	54	-	59	7		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	54	-	59	606		F	#		
Temperature	C	04/20/2009	N001	54	-	59	9.75		F	#		
Turbidity	NTU	04/20/2009	N001	54	-	59	5.18		F	#		
Uranium	mg/L	04/20/2009	N001	54	-	59	0.0098		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0127 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	94	-	99	0.0016	B	UF	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	94	-	99	95		F	#		
pH	s.u.	04/20/2009	N001	94	-	99	7.19		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	94	-	99	722		F	#		
Temperature	C	04/20/2009	N001	94	-	99	9.92		F	#		
Turbidity	NTU	04/20/2009	N001	94	-	99	0.55		F	#		
Uranium	mg/L	04/20/2009	N001	94	-	99	0.017		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0135 WELL Well is knocked over!!

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	18	-	23	2.8		F	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	18	-	23	46.6		F	#		
pH	s.u.	04/20/2009	N001	18	-	23	6.26		F	#		
Specific Conductance	umhos /cm	04/20/2009	N001	18	-	23	369		F	#		
Temperature	C	04/20/2009	N001	18	-	23	7.25		F	#		
Turbidity	NTU	04/20/2009	N001	18	-	23	5		F	#		
Uranium	mg/L	04/20/2009	N001	18	-	23	0.0011		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0136 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	0001	53	-	58	0.15		FQ	#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	53	-	58	142		FQ	#		
pH	s.u.	04/20/2009	N001	53	-	58	7.23		FQ	#		
Specific Conductance	umhos /cm	04/20/2009	N001	53	-	58	610		FQ	#		
Temperature	C	04/20/2009	N001	53	-	58	9.2		FQ	#		
Turbidity	NTU	04/20/2009	N001	53	-	58	45.2		FQ	#		
Uranium	mg/L	04/20/2009	0001	53	-	58	0.016		FQ	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0160 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	51	-	56	0.13		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	51	-	56	62		F	#		
pH	s.u.	04/22/2009	N001	51	-	56	6.33		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	51	-	56	746		F	#		
Temperature	C	04/22/2009	N001	51	-	56	8.29		F	#		
Turbidity	NTU	04/22/2009	N001	51	-	56	6.29		F	#		
Uranium	mg/L	04/22/2009	N001	51	-	56	0.021		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0161 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	0002	93	-	98	0.009		F	#	0.00012	
Manganese	mg/L	04/22/2009	N001	93	-	98	0.0066		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	93	-	98	65		F	#		
pH	s.u.	04/22/2009	N001	93	-	98	6.46		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	93	-	98	810		F	#		
Temperature	C	04/22/2009	N001	93	-	98	8.55		F	#		
Turbidity	NTU	04/22/2009	N001	93	-	98	1.61		F	#		
Uranium	mg/L	04/22/2009	0002	93	-	98	0.018		F	#	0.0000045	
Uranium	mg/L	04/22/2009	N001	93	-	98	0.018		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0181 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	18	-	23	0.23		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	18	-	23	10		F	#		
pH	s.u.	04/22/2009	N001	18	-	23	6.81		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	18	-	23	545		F	#		
Temperature	C	04/22/2009	N001	18	-	23	7.91		F	#		
Turbidity	NTU	04/22/2009	N001	18	-	23	2.61		F	#		
Uranium	mg/L	04/22/2009	N001	18	-	23	0.011		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0183 WELL Casing bent.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	93	-	98	0.012		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	93	-	98	23		F	#		
pH	s.u.	04/22/2009	N001	93	-	98	6.53		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	93	-	98	1057		F	#		
Temperature	C	04/22/2009	N001	93	-	98	8.95		F	#		
Turbidity	NTU	04/22/2009	N001	93	-	98	7.75		F	#		
Uranium	mg/L	04/22/2009	N001	93	-	98	0.057		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0186 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	53	-	58	0.0027	B	UF	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	53	-	58	166		F	#		
pH	s.u.	04/22/2009	N001	53	-	58	7.32		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	53	-	58	643		F	#		
Temperature	C	04/22/2009	N001	53	-	58	7.81		F	#		
Turbidity	NTU	04/22/2009	N001	53	-	58	5.5		F	#		
Uranium	mg/L	04/22/2009	N001	53	-	58	0.017		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0187 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	93	-	98	0.99		F	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	93	-	98	77		F	#		
pH	s.u.	04/22/2009	N001	93	-	98	6.45		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	93	-	98	655		F	#		
Temperature	C	04/22/2009	N001	93	-	98	8.69		F	#		
Turbidity	NTU	04/22/2009	N001	93	-	98	3.23		F	#		
Uranium	mg/L	04/22/2009	N001	93	-	98	0.0093		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0188 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	53	-	58	0.0013	B	UF	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	53	-	58	7		F	#		
pH	s.u.	04/22/2009	N001	53	-	58	6.86		F	#		
Specific Conductance	umhos /cm	04/22/2009	N001	53	-	58	811		F	#		
Temperature	C	04/22/2009	N001	53	-	58	7.47		F	#		
Turbidity	NTU	04/22/2009	N001	53	-	58	1.12		F	#		
Uranium	mg/L	04/22/2009	N001	53	-	58	0.035		F	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0189 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	93	-	98	0.85		FQ	#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	93	-	98	32		FQ	#		
pH	s.u.	04/22/2009	N001	93	-	98	6.07		FQ	#		
Specific Conductance	umhos /cm	04/22/2009	N001	93	-	98	2075		FQ	#		
Temperature	C	04/22/2009	N001	93	-	98	7.9		FQ	#		
Turbidity	NTU	04/22/2009	N001	93	-	98	6.87		FQ	#		
Uranium	mg/L	04/22/2009	N001	93	-	98	0.016		FQ	#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0469 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	N001	-	0.0012	B	U	#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	-	134			#		
pH	s.u.	04/21/2009	N001	-	7.66			#		
Specific Conductance	umhos /cm	04/21/2009	N001	-	244			#		
Temperature	C	04/21/2009	N001	-	9.3			#		
Turbidity	NTU	04/21/2009	N001	-	2.13			#		
Uranium	mg/L	04/21/2009	N001	-	0.00062			#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0478 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	-	0.42			#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	-	71			#		
pH	s.u.	04/22/2009	N001	-	7.24			#		
Specific Conductance	umhos /cm	04/22/2009	N001	-	277			#		
Temperature	C	04/22/2009	N001	-	22.39			#		
Turbidity	NTU	04/22/2009	N001	-	0.87			#		
Uranium	mg/L	04/22/2009	N001	-	0.0026			#	0.0000045	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0667 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	-	0.0033	B		#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	-	65			#		
pH	s.u.	04/22/2009	N001	-	7.08			#		
Specific Conductance	umhos /cm	04/22/2009	N001	-	239			#		
Temperature	C	04/22/2009	N001	-	13.47			#		
Turbidity	NTU	04/22/2009	N001	-	1.06			#		
Uranium	mg/L	04/22/2009	N001	-	0.00096			#	0.0000045	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

This page intentionally left blank

Surface Water Quality Data

This page intentionally left blank

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0248 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/20/2009	N001	0.13			#	0.00012	
Oxidation Reduction Potential	mV	04/20/2009	N001	75			#		
pH	s.u.	04/20/2009	N001	7.69			#		
Specific Conductance	umhos/cm	04/20/2009	N001	368			#		
Temperature	C	04/20/2009	N001	12.19			#		
Turbidity	NTU	04/20/2009	N001	9.54			#		
Uranium	mg/L	04/20/2009	N001	0.0094			#	0.0000045	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0777 SURFACE LOCATION Tomichi Creek SSE of well 0058

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	0001	0.071			#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	112			#		
pH	s.u.	04/21/2009	N001	7.81			#		
Specific Conductance	umhos/cm	04/21/2009	N001	322			#		
Temperature	C	04/21/2009	N001	14.2			#		
Turbidity	NTU	04/21/2009	N001	33.4			#		
Uranium	mg/L	04/21/2009	0001	0.0068			#	0.0000045	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0780 SURFACE LOCATION NE CORNER VALCO PIT

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/22/2009	N001	0.015			#	0.00012	
Oxidation Reduction Potential	mV	04/22/2009	N001	164			#		
pH	s.u.	04/22/2009	N001	8.09			#		
Specific Conductance	umhos/cm	04/22/2009	N001	438			#		
Temperature	C	04/22/2009	N001	9.87			#		
Turbidity	NTU	04/22/2009	N001	5.84			#		
Uranium	mg/L	04/22/2009	N001	0.016			#	0.0000045	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0792 SURFACE LOCATION KMONKS, SURFACE LOCATION, 8/11/94

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	0001	0.026			#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	128			#		
pH	s.u.	04/21/2009	N001	7.92			#		
Specific Conductance	umhos/cm	04/21/2009	N001	194			#		
Temperature	C	04/21/2009	N001	7.43			#		
Turbidity	NTU	04/21/2009	N001	24.1			#		
Uranium	mg/L	04/21/2009	0001	0.00065			#	0.0000045	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/10/2009
Location: 0795 SURFACE LOCATION KMONKS, SURFACE LOCATION, 8/11/94

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/21/2009	0001	0.026			#	0.00012	
Oxidation Reduction Potential	mV	04/21/2009	N001	133			#		
pH	s.u.	04/21/2009	N001	7.74			#		
Specific Conductance	umhos/cm	04/21/2009	N001	192			#		
Temperature	C	04/21/2009	N001	8.17			#		
Turbidity	NTU	04/21/2009	N001	21.4			#		
Uranium	mg/L	04/21/2009	0001	0.00056			#	0.0000045	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

This page intentionally left blank

Equipment Blank Data

This page intentionally left blank

BLANKS REPORT
LAB: PARAGON (Fort Collins, CO)
RIN: 09032202
Report Date: 6/10/2009

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Manganese	GUN01	0999	04/22/2009	N001	mg/L	0.00088	B	U	0.00012		E
Uranium	GUN01	0999	04/22/2009	N001	mg/L	0.000039	B	U	0.0000045		E

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

SAMPLE TYPES:
- E Equipment Blank.

This page intentionally left blank

Static Water Level Data

This page intentionally left blank

STATIC WATER LEVELS (USEE700) FOR SITE GUN01, Gunnison Processing Site

REPORT DATE: 6/10/2009

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0002	U	7646.75	04/21/2009	10:50:01	5.4	7641.35	
0005	O	7644.66	04/21/2009	17:00:11	6.91	7637.75	
0006	O	7647.23	04/21/2009	17:30:56	11.84	7635.39	
0012R		7645.95	04/21/2009	13:45:24	12.33	7633.62	
0013	D	7643.75	04/22/2009	08:35:52	12.69	7631.06	
0062	O	7630.61	04/20/2009	15:20:56	7.2	7623.41	
0063	O	7630.34	04/20/2009	15:45:46	8.18	7622.16	
0064	O	7620.76	04/20/2009	14:50:04	7.13	7613.63	
0065	O	7610.27	04/22/2009	07:50:35	2.26	7608.01	
0066	O	7606.22	04/21/2009	16:00:55	1.81	7604.41	
0067	O	7628.96	04/21/2009	09:10:47	2.9	7626.06	
0102	U	7647.3	04/21/2009	11:05:41	6.15	7641.15	
0105	O	7646.11	04/21/2009	16:40:58	8.95	7637.16	
0106	O	7647.22	04/21/2009	17:50:27	11.98	7635.24	
0112	O	7645.74	04/21/2009	13:20:28	12.72	7633.02	
0113	D	7643.83	04/22/2009	08:55:24	12.78	7631.05	
0125	D	7633.52	04/20/2009	16:35:03	6.95	7626.57	
0126	D	7634.14	04/20/2009	16:55:54	7.25	7626.89	
0127	D	7634.64	04/20/2009	17:25:18	9.03	7625.61	
0135	D	7627.03	04/20/2009	14:15:05	5.98	7621.05	
0136	D	7626.24	04/20/2009	13:45:02	6.03	7620.21	
0160	D	7604.39	04/22/2009	14:15:19	4.92	7599.47	
0161	D	7605.63	04/22/2009	14:30:39	6.41	7599.22	
0181	D	7616.38	04/22/2009	16:30:18	3.3	7613.08	
0183	D	7616.27	04/22/2009	16:10:00	4.63	7611.64	
0186	D	7627.21	04/22/2009	10:20:54	6.52	7620.69	
0187	D	7625.91	04/22/2009	10:55:14	5.98	7619.93	
0188	D	7613.65	04/22/2009	13:10:13	5.77	7607.88	
0189	D	7613.56	04/22/2009	12:50:20	6.5	7607.06	

FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT F OFF SITE
N UNKNOWN O ON SITE U UPGRADIENT

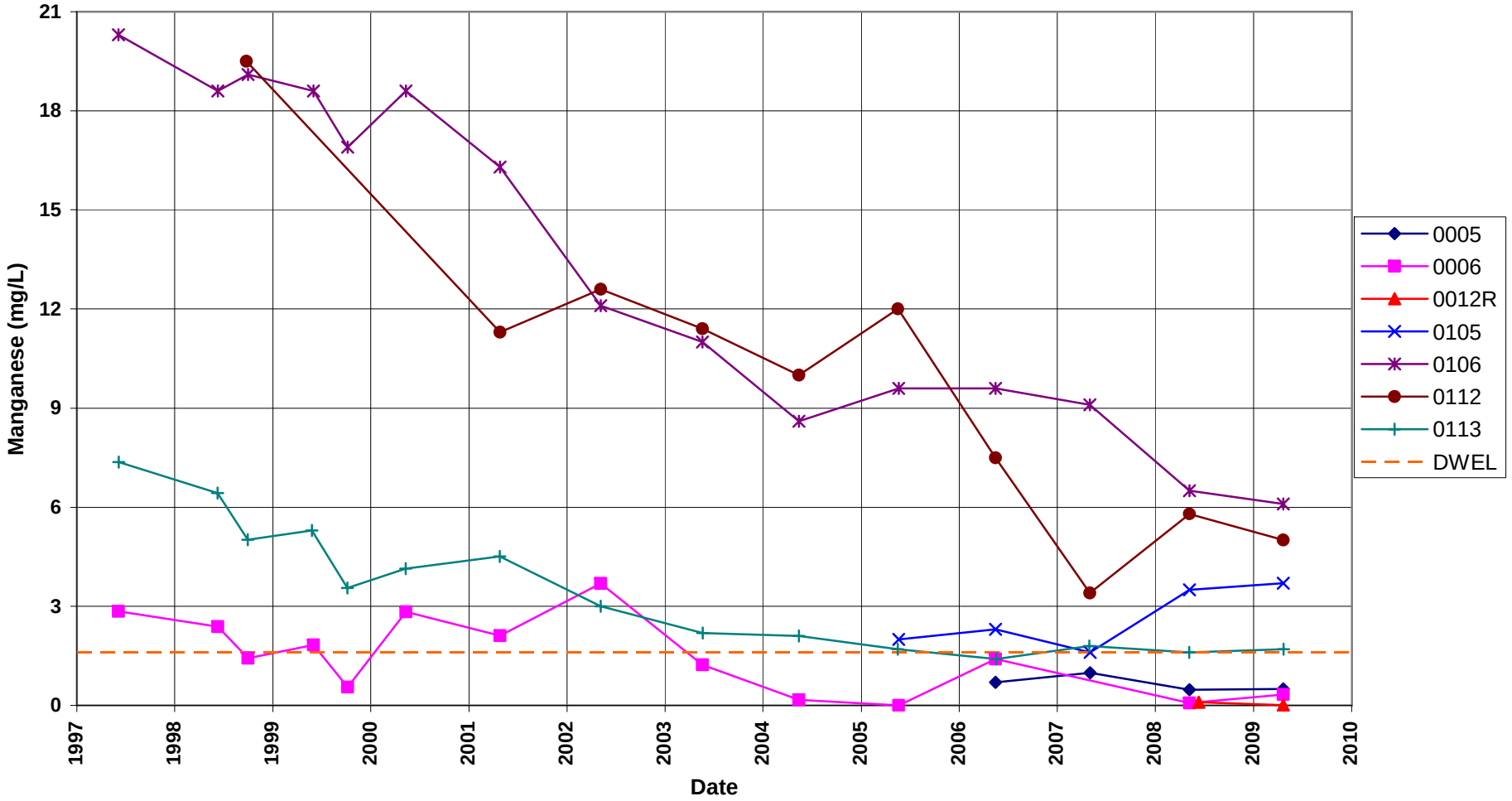
WATER LEVEL FLAGS: D Dry F FLOWING

This page intentionally left blank

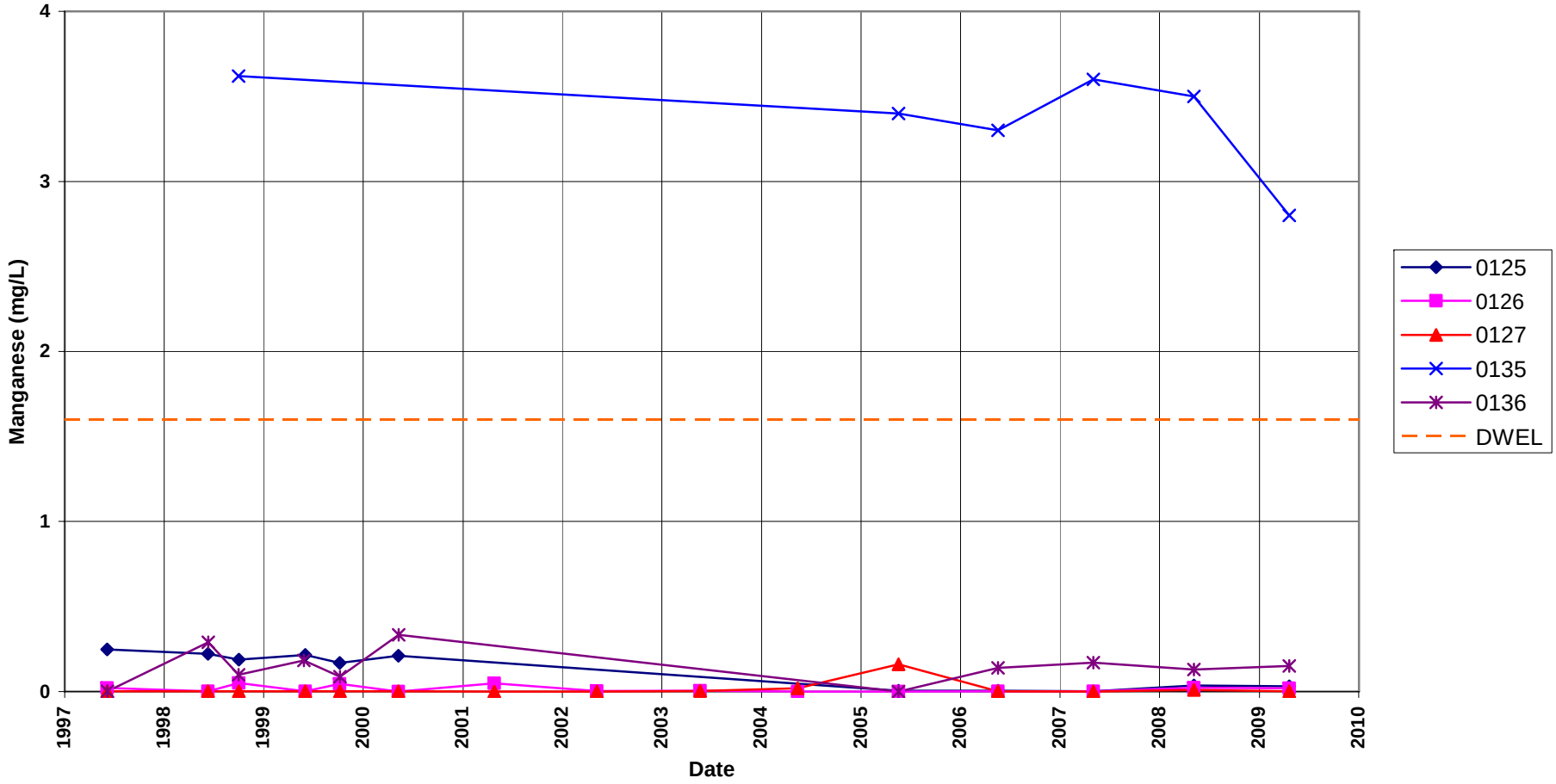
Time-Concentration Graphs

This page intentionally left blank

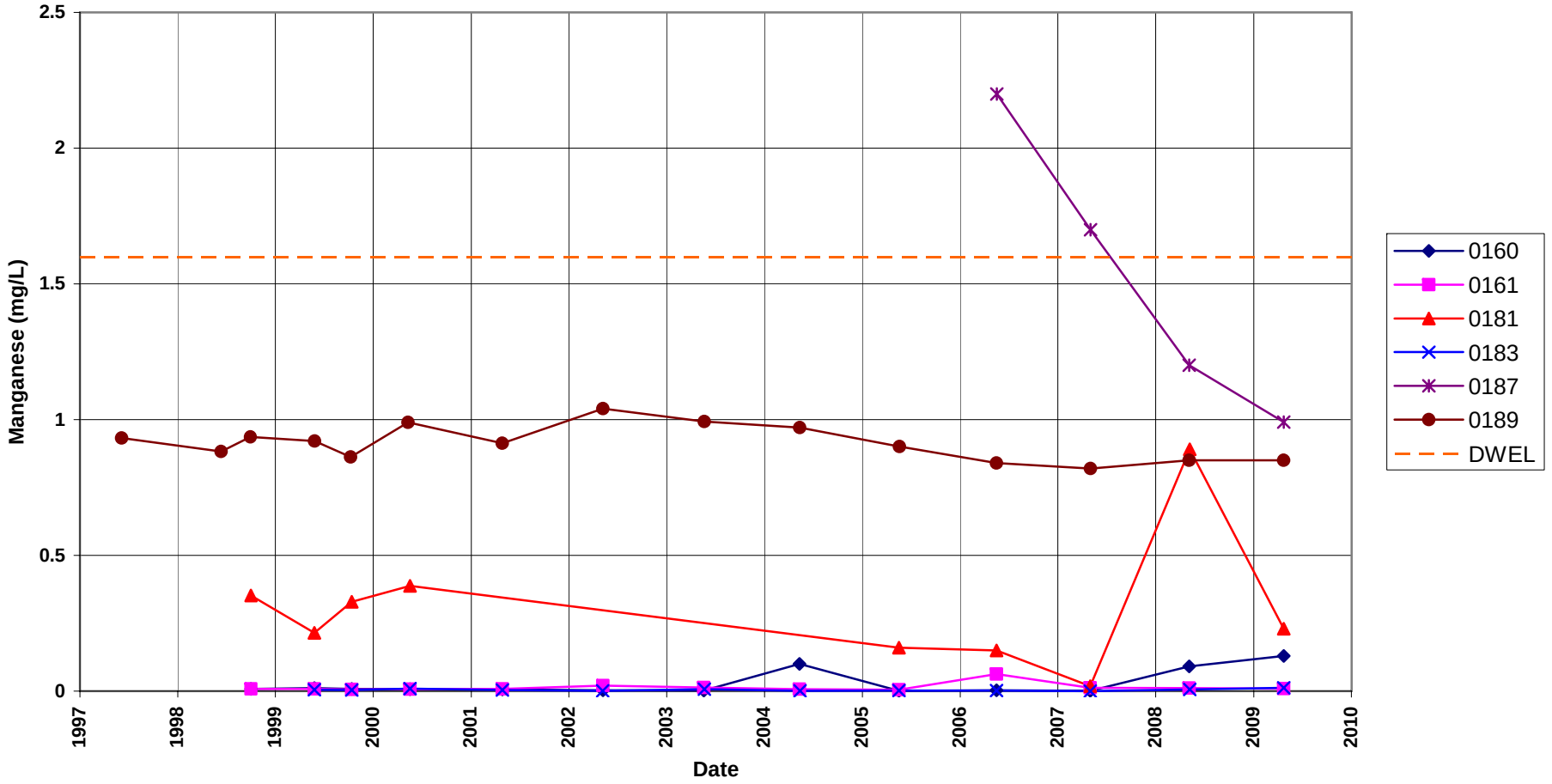
Gunnison Processing Site
Manganese Concentration
Drinking Water Equivalent Level (DWEL) = 1.6 mg/L



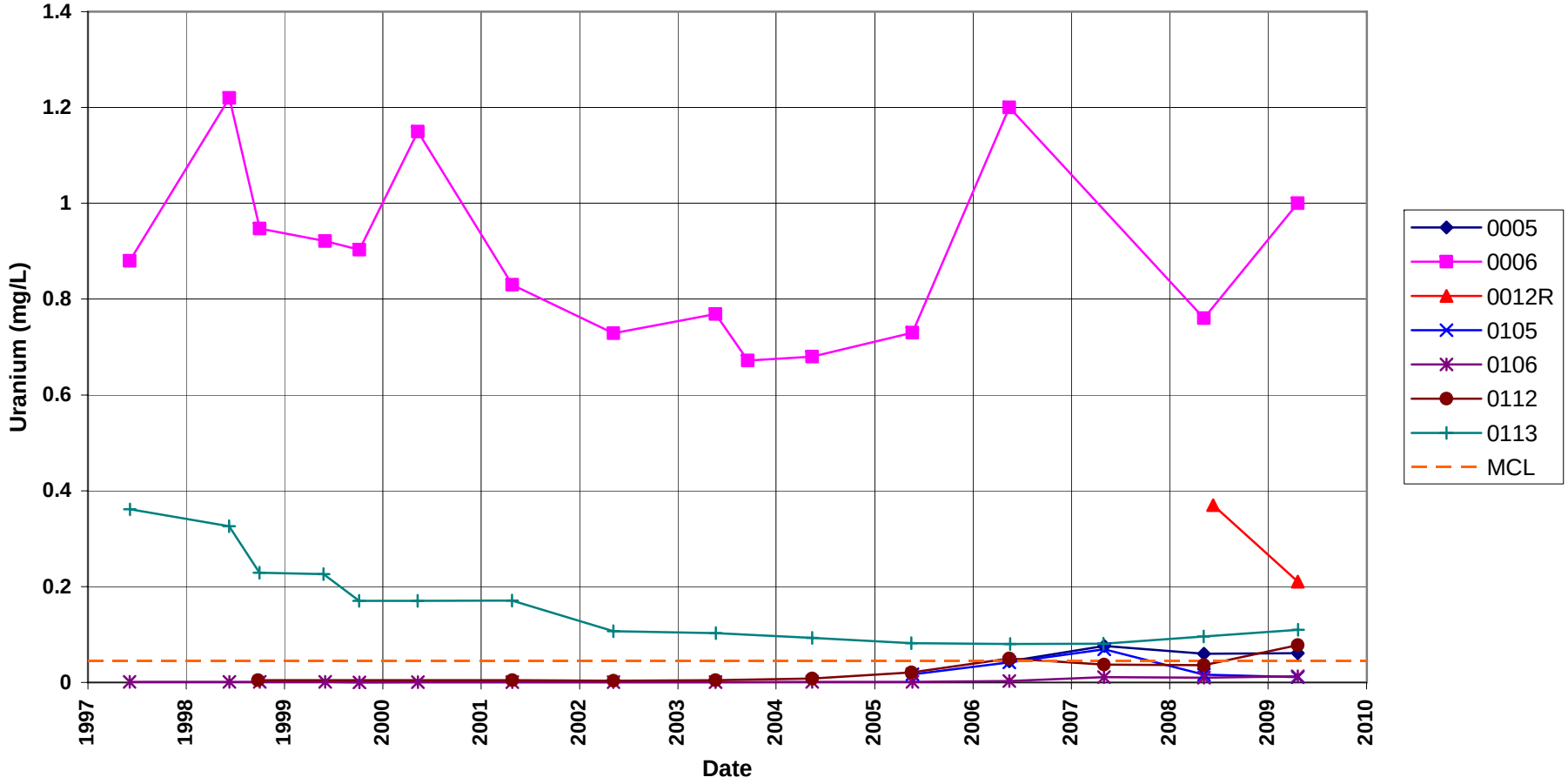
Gunnison Processing Site
Manganese Concentration
Drinking Water Equivalent Level (DWEL) = 1.6 mg/L



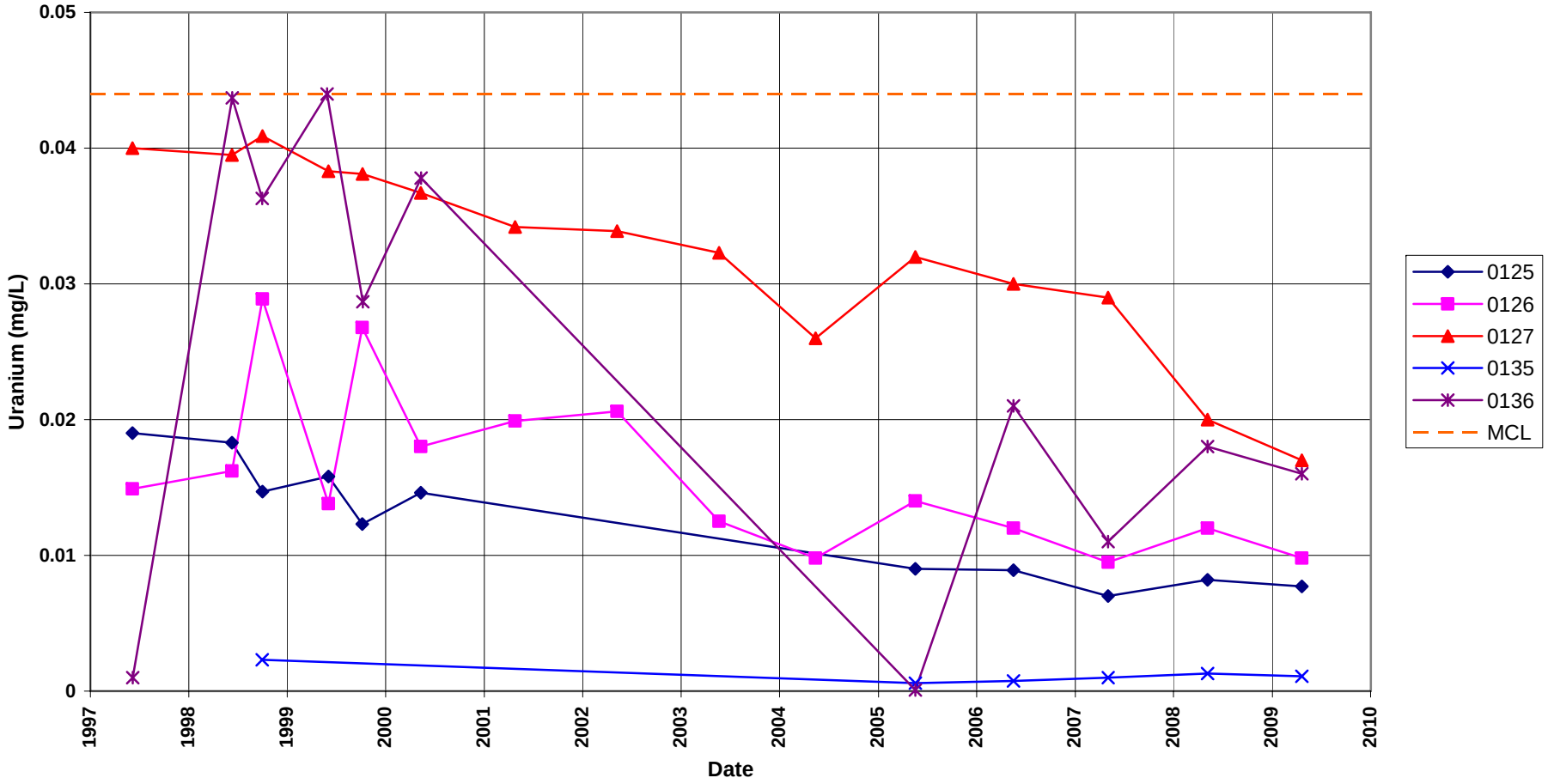
Gunnison Processing Site
Manganese Concentration
Drinking Water Equivalent Level (DWEL) = 1.6 mg/L



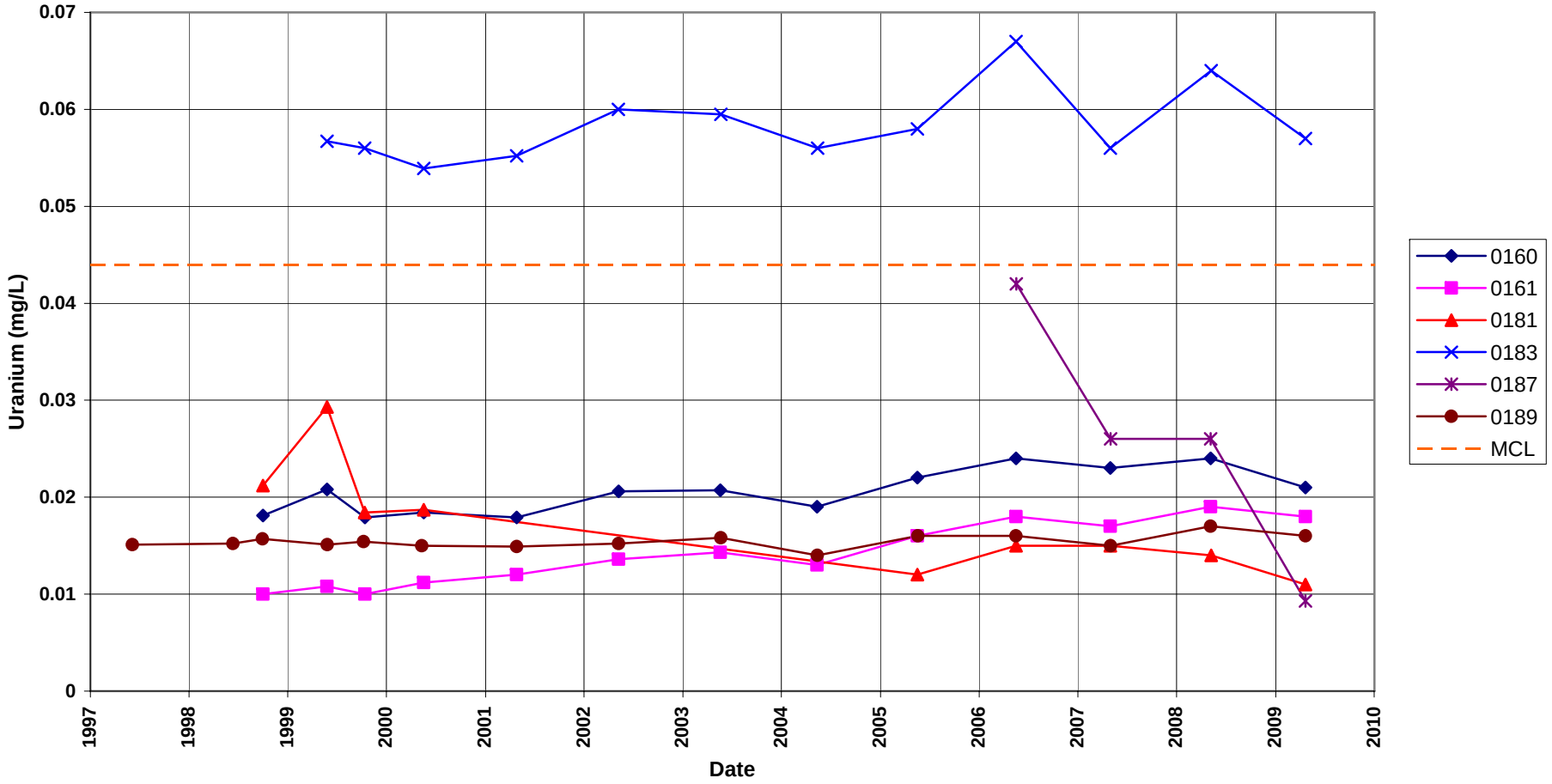
Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Attachment 3
Sampling and Analysis Work Order

This page intentionally left blank

Stoller established 1959

Task Order LM00-501
Control Number 09-0620

March 18, 2009

U.S. Department of Energy
Office of Legacy Management
ATTN: Joseph Desormeau
Site Manager
2597 B ¾ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller
April 2009 Environmental Sampling at Gunnison, Colorado

REFERENCE: Task Order LM00-501-02-108-402, Gunnison Processing Site

Dear Mr. Desormeau:

The purpose of this letter is to inform you of the upcoming sampling at Gunnison, Colorado. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring at the Gunnison, Colorado, Processing Site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of April 20, 2009.

The following lists show the monitor wells (with zone of completion), surface locations, and private wells scheduled to be sampled during this event.

Processing Site (GUN01) Monitor Wells*

002 Al	062 Al	066 Al	106 Al	126 Al	160 Al	186 Al
005 Al	063 Al	067 Al	112 Al	127 Al	161 Al	187 Al
006 Al	064 Al	102 Al	113 Al	135 Al	181 Al	188 Al
012R Al	065 Al	105 Al	125 Al	136 Al	183 Al	189 Al
013 Al						

Processing Site (GUN01) Domestic Wells*

080 Nr	082 Nr	476 Nr	477 Nr	478 Nr	667 Al	683 Nr
081 Nr	469 Al					

*NOTE: Al = Alluvium; Nr = no recovery of data for classifying

Surface Locations (GUN01)

248	777	780	792	795

The S.M. Stoller Corporation 2597 B ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

If you have any questions, please call me at extension (970) 248-6654.

Sincerely,

Sam Campbell

Sam Campbell
Site Lead

SC/lcg/lb

Enclosures (3)

cc: (electronic)
Cheri Bahrke, Stoller
Sam Campbell, Stoller
Steve Donivan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
EDD Delivery
rc-grand.junction

The S.M. Stoller Corporation 2597 B ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

Constituent Sampling Breakdown

Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Approx. No. Samples/yr	29	5			
Field Measurements					
Alkalinity					
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X	X			
Temperature	X	X			
Laboratory Measurements	*GUN01*	*GUN01*			
Aluminum					
Ammonia as N (NH3-N)					
Calcium			5	SW-846 6010	LMM-01
Chloride			0.5	SW-846 9056	WCH-A-039
Chromium					
Gross Alpha					
Gross Beta					
Iron			0.05	SW-846 6020	LMM-02
Lead					
Magnesium			5	SW-846 6010	LMM-01
Manganese	X	X	0.005	SW-846 6010	LMM-01
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO3+NO2)-N					
Potassium			1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium					
Silica					
Sodium			1	SW-846 6010	LMM-01
Strontium					
Sulfate			0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids			10	SM2540 C	WCH-A-033
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
Total No. of Analytes	2	2			

Note: All analyte samples are considered unfiltered unless stated otherwise. All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

This page intentionally left blank

Attachment 4
Trip Report

This page intentionally left blank

Stoller established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: April 27, 2009

TO: Sam Campbell

FROM: Jeff Price

SUBJECT: Trip Report

Site: Gunnison, Colorado, Processing Site.

Dates of Sampling Event: April 20-23, 2009.

Team Members: Sam Campbell and Jeff Price.

Number of Locations Sampled: 29 monitor wells, 5 surface water locations, and 6 domestic wells.

Locations Not Sampled/Reason: Domestic wells 0476, 0477, and 0683 were not sampled because either the home is being used seasonally or the owner was away for the week.

Location Specific Information: All monitor wells were purged and sampled using Category I criteria with the exception of monitor wells 0136 and 0189, which were purged and sampled using Category II criteria.

Sample tubing was replaced with larger diameter tubing in numerous monitor wells to facilitate future well redevelopment.

Domestic well 0080 supplies water to two homes. Contact information for the second home is: Heidi Brauch, 510 Redtail Ln, Gunnison, CO.

The concrete/gravel company has changed ownership from Valco, Inc. to United Companies. Gravel mining activities, including dewatering of their active pit, were not occurring during the sampling event. The active gravel pit was full of water during the sampling event for the first time in several years.

The pasture adjacent to the gravel operation that contains numerous monitor wells was dry because flood irrigation activities had not started yet.

Field Variance: None.

Quality Control Sample Cross Reference: Following are the false identifications assigned to the quality control samples:

False ID	True ID	Sample Type	Ticket Number
2597	0067	Duplicate	HEV-097
2598	0113	Duplicate	HEV-098
2749	0161	Duplicate	HEV-102
2748		Equipment Blank	HEV-101

Requisition Numbers Assigned: Samples were assigned to report identification number (RIN) 09032202.

Water Level Measurements: Water levels were measured at all sampled monitor wells.

Well Inspection Summary: All wells in the sampling network were redeveloped the previous month. All wells were in good shape with no deficiencies identified.

Equipment: All equipment functioned properly.

Stakeholder/Regulatory: Met with Marlene Crosby, Gunnison County Public Works Director, to discuss current work on the former millsite. Specifically, discussion involved current landscaping activities that include excavation that could penetrate into supplemental standards areas. The conclusion of the discussions was for the County to bring in extra fill into the areas that cross the supplemental standards areas so that excavation would not get into the select fill layer above the thorium contaminated material.

Institutional Controls

Fences, Gates, Locks: No issues identified.
Signs: Not applicable.
Trespassing/Site Disturbances: Work continues on the former processing site to develop the site as a light industrial complex. Activities included landscaping around the perimeter of the site.

Site Issues: None.

Disposal Cell/Drainage Structure Integrity: Not applicable.
Vegetation/Noxious Weed Concerns: Not applicable.
Maintenance Requirements: None.

Access Issues: None.

Corrective Action Required/Taken: Sampling of domestic wells 0476, 0477, and 0683 will be attempted this summer when the house is occupied and the well in use.

Include Heidi Brauch on the distribution to receive the homeowner letter-report for domestic well 0080.

(SEC/lcg)

cc: (electronic)
J. Desormeau, DOE
C. I. Bahrke, Stoller
S. E. Donivan, Stoller
EDD Delivery